eats freely in his house according to his good pleasure. Formerly we used to take the oxen of the man who had dared to steal the new year."

Conclusion on the luma rite.

All these luma rites[1] of first fruits seem to have primarily a *religious origin*. The Bantus do not feel that they dare enjoy the products of the soil unless they have first given a portion of them to their gods. Is it not these gods who make the cereals grow? Have they not the power even of controlling the wizards who bewitch the fields? These rites are also evidently dictated by the *sense of hierarchy*. A subject must not precede his chief nor a younger brother the elder in the use of the new harvest, else they would kill those in authority. Such an act is against order. We shall see that, even when the seeds are sown, the elders must take precedence. But the custom seems also to have been actuated by the idea of *passage*. There is a passage from one year to another. For the Thongas, I think the new year begins twice every year: it begins when tilling recommences, in July, August, when the heat returns. This is the hlobo. It begins a second time at harvest, and then there is passage from the food of the last year to the food of this year. This is the nguba (Ro.) or ñwaka (Dj.). Though the luma rites do not bear all the characteristics of a true passage rite, like those of circumcision or moving, we may observe in the luma of bukanye a kind of marginal period of general licence, when the ordinary laws are more or less suspended. The taking of a first mouthful probably signifies the aggregation to the new period, the magical powder used on this occasion being a protective measure to shield them from the calamities of this unknown year... And after all, is it not that feeling of fear which so easily takes possession of the heart of man when entering on a new state and starting something fresh, which has led the savage to surround the use of the first fruit with so many ritual precautions?

IV. *Taxation.*

The chief governs (fuma). *Fuma* means to command, but also to live in plenty, to be rich. The subject (nandja, follower) obeys; he follows the chief who marches before him just as the

1 [see pp. 394-404 in these categories of the 116-analysis]

and five tens, and three tens, and five, and two. This system of numeration is clearly decimal, and is in direct relation with the ten fingers of the hands ; this is proved by the fact that, when counting, Natives generally use their fingers. They start with the little finger of the left hand, *one* ; then the little finger and the third finger, *two* ; these two and the second, *three* ; these three and the index, *four* ; these four and the thumb, *five* ; they then add the fingers of the right hand, beginning with the thumb : five plus one, five plus two, five plus three, five plus four. *Ten* is shown by clapping both hands ; notice that five, the left hand with the thumb separated from the four other fingers, imitates the Roman sign of V, and ten, the two hands joined, with the fingers crossing each other, make an X, the Roman sign for 10! This shows that our system of numbers, of which we are justly proud, probably began in the same way as amongst most of the Bantu tribes! 802

On the other hand it must be said that, if this system has not reached a higher development, the cause lies in the fact that Thongas do not wish, or do not *take the trouble* to deal with high figures. They very soon declare that a number is : "tjandjabahlayi (Dj.) or hlulabakonti (Ro.)" viz., "the one which passes the capacity of reckoners." When Gungunyana made a raid into the Ntimane district and stole the oxen there, his men tried to count the cattle, but, having experienced much difficulty in the operation, they said to their king : "It is tjandjabahlayi!" — "They are innumerable!" There were a few hundreds of them (1).

More than that! Bantus have not attained to *any precision* in counting the hours of the day, for instance, because there was no necessity for doing so in the primitive state. Consider how greatly our habit of always consulting our watches has contributed to create a sense of precision in us and to introduce it into our lives. For the Bantus, the sun is the only watch, and that great time-keeper is all sufficient for them. Do they wish to make an appointment for the following day? They point to a place in the 805

(1) As regards *counting men*, in former times this was positively prohibited. If any one, seeing a throng assembled on the hubo, wanted to know the number of people present, they would say to him : "What! You are counting us? Whom do you want to do away with?" (Shana wa hi nkonta, u ta hi pumba na?) 802 789

805 sky, and say: "We shall meet when the sun has reached that spot." It may be in the morning, at the time "when the rays of the sun begin to pierce" (tlhaba-sana); at noon, nhlekanhin "when the sun is in the middle of its course;" in the afternoon, *hi mfenya*, say the Rongas "when the sea breeze comes up", as is the case almost every day; or "when the sun is going down" (ndjenga) (1). It must be added that the sun is rarely hidden in these lands of light.

As regards the counting of days, they have special names for to-morrow (mundjuku), the day after to-morrow (mundlwana), and the three following days; for the third day, pambari; the fourth, wo dlankambane, viz., the one when the travellers going on a business journey break the plate in order to be obliged to come home (p. 144); for the fifth, wa tiki- tiki. Tolo, is yesterday; tolwen, the day before yesterday; tolwen wa hase, the day preceding the day before yesterday; ñanwaka, this year; hashau, next year; nweshemu, last year; ñwaka lowo, the year before last. One hardly counts days, or years, beyond this point (2).

802 One occasion on which arithmetical skill, or at least the faculty of addition, is specially required, is the counting of the lobolo, when this consists of hoes. Then the tens are carefully piled up separately, the whole family witnessing the operation, but this can hardly be called a mathematical achievement.

So, on the whole, opportunities of using the arithmetical

823 (1) If this use of the sun as a means of fixing the time inevitably leads to a want of precision, it has on the other hand, created a wonderful sense of direction amongst the Natives. They never lose sight of the North, they always know where the sun rises and sets, and this is no doubt the secret of their instinct. When travelling with them, it is not necessary to consult the compass; I would rather put my fate in their hands, knowing that they will not make any mistakes as regards direction (they will certainly make many as regards distance), as they say their *hearts* (timbilu, the same word employed for genius and instinct), viz., their subconscious powers, help them better than our instruments in the midst of the African bush; not to mention their knowledge of native paths. These powers have been cultivated by the constant observation of the sun.

(2) In my Grammaire Ronga, another list of names of the days following to-day is given, containing as many as 7. This seems to be the Ronga version, whilst that here given is the Djonga. However, in neither case is the list in constant and common use. It is known only to certain individuals who look on it more or less as a curiosity. To count days further than the day after to-morrow is quite unusual.

faculty are very rare in primitive Native life, and we ought not 802
to be astonished that this faculty has remained undeveloped. To pretend however that it is altogether wanting would be erroneous. I can give many proofs that it exists, and sometimes manifests itself in an interesting way.

First, in the game called *nyengeli-nyengeli mune*. The players 524
place a number of fruit stones on the ground two by two. One 802
turns his back, and the other player, pointing to the first group of two, asks: "Nyengeli nyengeli mune?" i.e: "How many stones are there?" The one whose back is turned replies: "Take one away and place it elsewhere," specifying where. The same thing is done with the second, and so on. Certain groups have eventually more stones than others. When a group is entirely scattered, the guesser says: "Makua ntsikitane," meaning "There are no more." The questioner then passes rapidly from group to group, over and over again, and the guesser must state how many stones each group contains. The game requires a considerable effort of memory.

Second proof: Shinangana! Shinangana is a man living in 805
Spelonken, near Elim Station, a raw Native who is ignorant of the art of reading and writing, and who never went to school, but who has created a *chronology* embracing the past 70 years. He knows what has happened in each year since 1859, and has arrived unaided at the conception of an era. His era starts from the emigration of the Thonga tribes into the Transvaal, when they fled before Manukosi, on the return of the Ngoni chief from the Mosapa or Gaza country (I. p. 28). The Nkunas, Mavundjas, Tsungus and other Hlabi clans were obliged at that time to take refuge in Spelonken, and this is the beginning of the era. Most of the years after that great event have their special designation. I had the good fortune to have an interview with Shinangana in 1905 and was able to note the details of his chronology, as he dictated them to me. After having enumerated all these years, he concluded in a triumphant tone with the exclamation: "All these years since the return of Manukosi make five hundred, and three hundred, and four months!" This is a most curious piece of Native historiography, I think quite unique in the whole Thonga tribe.

Having a remarkable bent for this work, he developed his gift, 805
acquired fame, and was consulted by all those who wished to
know their age, or the date of some event. This increased his
powers. He took a great delight in these consultations and,
working at his subject every day, aided by his wonderful memory
he could recite the whole chronology without the slightest
hesitation. I give it in Appendix I,† and it is worthy of publication,
not only as a proof of the possibility of a development in arithmetic
amongst raw Natives, but also for its contents, as a contribution to
the history of the Northern Transvaal.

We come to the same conclusion when teaching our pupils 803
arithmetic in our missionary schools. This is certainly the 163
branch of study in which they are the least proficient, and their
teachers will all confess to having sometimes despaired of their
mathematical faculty. However, when taught European numer-
ation, English or Portuguese, most of them learn the four rules,
and many attain to the Weights and Measures, and the Rule
of Three. I saw a class of young Natives successfully studying
Algebra in Lovedale, and they are not altogether incapable of
Arithmetic. However they succeed better when the effort is one
of memory, and this explains why they are much more at their
ease when learning the English Weights and Measures, entailing
complicated operations of reduction, than when put to the
metric system which seems so much more simple and rational.
The English system requires a perfect committal to memory of
the relation between the various measures, yards, feet and inches,
gallons, pints, gills, pounds, ounces and grains, and, these being
once mastered, all the work becomes purely mechanical. This is
what Natives like, whilst in the metric system there is one idea
pervading the whole and a certain minimum of reasoning is
necessary for its use ; the necessity for this minimum explains the
unpopularity of the metric system amongst the Native pupils,
and the difficulty increases ten times when they come to problems,
and have to solve them without having been told whether addition
or substraction is necessary! So arithmetic, when workable by
means of the memory, seems to them an easy and agreeable study ;
when it requires reasoning, it is a painful occupation. If

† [See pp. 585-587 -- Analyst]

The dawn is called mpundju; then comes hhabela sana, the 805
time when the rays of the sun (sana) are piercing ; *hisa ka sana*, 821
when they are burning ; *nhlekanhi*, the middle of the sky, or *shitakataka*, the maximum point of the heat ; then *ndjenga* (Dj.), or *lihungu* (Ro.), the afternoon, the time when the sun goes down (renga) ; *ku pela* or *ku hlwa*, when it reaches the horizon, and *mpimabayeni* (Dj.) the twilight, literally "the time when you do not easily recognize strangers coming to your village because it grows dark." These are the divisions of the day (siku). Then comes the night (busiku).

Eclipses do not seem to have ever much impressed the 821
imagination of the Thongas. At any rate, they never caused panics (Mboza). When, warned that an eclipse will take place, they see that, indeed, the sun or moon is "turning dark" (dji yentsha ntima), Natives are more struck with wonder at the supernatural knowledge of the White people, than with fear of the phenomenon itself.

I have already dealt with the notion of the *year*, (lembe, dji-ma), 806
which is very vague ; it begins at two different periods : that of 821
tilling and that of harvesting the first fruits (I, p. 396, II, p. 20). Thongas do not make any difference between a solar and a lunar year, their knowledge of months being very imperfect, as we shall shortly see.

Before leaving the source of light, I may add that the *light* 821
itself is called *ku bonekisa* (Ro.), or *ku bonakala* (Dj.), litt. that 822
which makes to appear. Of course Natives have no explanation to give of it. Moonlight is called by another name, viz. *nweti*, connected with hweti, moon. *Colours* are very imperfectly perceived, at least if we are to base our judgment on the vocabulary. *Ntima* means both black and dark blue. *Libungu* is carmine, red, purple, and also yellow. Yellow is not perceived as a distinct colour. *Psuka* is the tinge of dawn, and of the rising sun. *Nkushe*, which means sea-weed, is applied to the *blue* sky ; *nkwalala* is grey, *lihlaza* (Ro.) is green, the green of grass in the spring, and the [231]
corresponding term in Djonga is *rilambyana*, that which makes dogs howl. Very green grass has this effect on Native dogs.

The *moon* (nhweti (Dj.), hweti (Ro.) cl. yi-tin), was perhaps 821
personified in former times, as it bears the feminine suffix *eti*,

2: Junod M-5 (1895-1909) 1927 Thonga

The wane is called *ku shwela dambo* : the moon is then found by the rising sun to be still in the sky, not having yet dipped below the horizon. When, at last, it disappears, it is *munyama*, the obscurity; the moon is said *to fa*, to have died. Is this meant figuratively, as is often the case with the word ku fa, or do the Thongas really think that each moon dies and is replaced by a new moon? It is difficult to say ; most of them believe in an actual destruction and a new creation of the moon each month (Timotheo), and this would explain why they have the same word for moon and month ; they evidently identify the two ideas. Some, however, told me that they believed it to be the same celestial body which appeared anew each month. 772 821

Spoon, who is endowed with a very vivid imagination, believed that the sun and the moon have a race each month : the moon when it first appears is not yet firm (a yi si tiyela), like a new born child, so its light is feeble ; it is dominated by the sun ; but it grows and fights. When it is full, the sun sees "that now it is the moon!" : it is something to be reckoned with! During the second half of the month, as it decreases, it lingers in the sky and the sun soon overtakes it again and compels it to pass behind. Then the moon is entirely vanquished! How far these were Spoon's personal explanations or generally accepted ideas, I could not say. The term *shwela*, applied to the last quarter and meaning : "to be surprised in the morning" (See Ch. III), seems to convey a similar idea, and it is probable that Spoon rightly interpreted the ancient ideas of the tribe.

Each moon, being new, bears a special name. These names of the months, or moons, are now almost completely forgotten, at least in the Southern clans. This is indeed curious, when we think of the custom of presenting little children to the moon and telling them the name of their month (I. p. 53). This rite ought to have prevented the names from becoming obsolete. In the Northern clans they have been better preserved, and one of my colleagues, the Rev. H. Berthoud, succeeded in identifying them more or less. His attempt to revive the nomenclature for use among civilised Natives did not, however, succeed any better than the attempt of the scientists of the French Revolution. 772 805 821

192 Amongst the Ba-Ronga those[1] which are still known are : *Nhlangula*, 805 the month in which the flowers are swept (hlangula) from the trees, probably October, when all the minkuhlu, minkanye, etc., 821 blossom ; *Ñwendjamhala*, the month in which the antelope mhala, brings forth its young (November?) ; *Mawuwana*, when the *tihuhlu* (p. 18) are plucked, because the people shout : "Wuwana! wuwana!" in their joy at having plenty of almonds to suck, corresponds to December. *Hukuri* is said to be the month when the fruits of the *nkwakwa* (p. 17) are ripe (December also?). *Ndjati*, or *ndjata*, viz., I am coming, is the time of *nwebo*, when everyone is in his fields eating the new cobs of mealies, and if you call a person he will answer : "I will come directly! Have patience! I am busy here!" "This may be January or February. *Sunguti* is also one of the summer months. *Sibamesoko*, the moon which closes the paths, also called *Dwebindlela* or *Sibandlela*, is easy to identify : it is February, the time when the grass grows so high that it hides the paths leading to the nkanye trees. This is the end of the bukanye time (I. p. 397). *Nyenyana*, *Nywenywankulu* are the months of the birds (nyanyana), when one spends all one's time in chasing the winged marauders from the fields of sorghum and millet (March. April). *Mudashini*, viz., what am I to eat? is the month when you have harvested so many different kinds of food that you do not know which to choose : this is the time directly after harvest, May or June. *Khotabushika*, viz., when winter comes, probably June or July.

772 The *stars* are called *tinyeleti* (yin-tin) and play a remarkably 821 small part in the ideas of the tribe. The modern theory according to which all religions started from the worship of stars, finds no confirmation at all in the South African Bantu tribes.

821. It is taboo to try to count the stars. If any one attempts 784 to do so people will say to him : "Keep quiet or you will wet the 861 hut during the night!" Counting stars represents the torments of the soul! If a child has been deprived of food as a punishment for an offence, his parents will tell him, when he goes to sleep : "Go and count the stars," viz., "you will feel hungry and not be able to go to sleep ; you will be as unhappy as if you had to count the stars."

[1] [names of moons -- Analyst]